

TO: Air Quality Board

THROUGH: Bryce C. Bird, Director

FROM: Sheila Vance, Environmental Scientist

DATE: April 6, 2022

SUBJECT: PROPOSE FOR PUBLIC COMMENT: Amend R307-506. Oil and Gas Industry: Storage Vessels; R307-508. Oil and Gas Industry: VOC Control Devices; R307-509. Oil and Gas Industry: Leak Detection and Repair Requirements; and R307-511. Oil and Gas Industry: Associated Gas Flaring.

In January 2018 the Air Quality Board promulgated new rules for oil and gas well sites that established a streamlined process for minor oil and gas source permitting by replacing the source-by-source permitting process with what is referred to as permit-by-rule (PBR). The PBR system benefits producers, UDAQ, and the public because it reduces permitting costs, eliminates several administrative steps in the permitting process, reduces permit engineering time, and ensures consistency of operational requirements.

Since the implementation of the PBR system, UDAQ has conducted several research projects and performed hundreds of site visits and inspections. This has led to new information that prompted the need to update several of the oil and gas rules. The impacted rules are associated with oil and gas storage vessels, VOC control devices, leak detection and repair (LDAR), and associated gas flaring.

The most impactful study conducted was the Uinta Basin Composition Study (UBCS) where separator gas discharge and pressurized liquids samples were collected and analyzed to estimate flash gas emissions from tanks. Samples were collected from 50 oil wells and 17 gas wells in the Uinta Basin from November 2018 to February 2019. This study provided a much more robust data set than what UDAQ previously relied on. The UBCS had a larger sample size, uniform sampling and analytical methods, one sampling facility and analyst, and the samples were collected in a narrow time window compared with the previous data set.

Storage Vessel Control Requirements

Per R307-506, a storage vessel is required to be controlled if it emits 4 tons per year (tpy) of VOCs. The current throughput value for oil storage vessels is 8,000 barrels over a 12-month rolling average, which was a conservative estimate based upon a national emission factor. With the UBCS data set, UDAQ recalculated estimated emissions from storage vessels and re-evaluated the product throughput that equates to the 4 tpy. UDAQ determined a more area-specific emission factor that lowered the throughput value for oil storage vessels from 8,000 barrels to 3,200 barrels.

The reduction in throughput values for oil storage vessels is the most impactful change to the current Utah oil and gas rules as it will require owners and operators to potentially install new emission control equipment that will require more operational maintenance as well as semi-

annual leak detection and repair inspections. The most current production data from 2021 indicates that lowering the throughput value may impact 160 oil well sites and reduce VOC emissions by approximately 1,100 tpy. The cost of retrofitting tanks and installing a combustor is approximately \$4,470 per ton of VOC reduced.

Removing Exemption for Permitted Facilities

Prior to the PBR system, the majority of oil and gas sources in the Basin were not permitted. Some sources did have Air Orders (permits) and these facilities were exempted from the rules even though their emission were above 4 tpy. The exemptions included tank emission controls, leak detection and repair (LDAR), and flaring of associated gas. These proposed amendments remove the AO exemption for approximately 94 facilities, and reduce annual VOC emissions by about 313 tpy. This change will promote equitable requirements and ease of compliance for oil and gas wells in the state.

Emergency Tanks

There are times that for safety reasons, a facility needs to utilize a tank for unexpected overfills or other unexpected downstream operational upsets. These “emergency tanks” are not always controlled, and can lead to significant VOC emissions in a short period of time when uncontrolled. R307-506 currently states that emergency tanks need to be emptied within 15 days and UDAQ is proposing to amend the timeframe to 48 hours. Since the tanks are used in an emergency situation it should be an operational priority to remove the material as quickly as possible.

Leak Detection and Repair

The 2017 oil and gas emission inventory attributes approximately 30% of VOC emissions to tank control failures and fugitive emissions. LDAR inspections aid in the discovery of large control failures and leaks. To encourage focused LDAR inspections prior to the January - March winter ozone season in the Uinta Basin, UDAQ is proposing to require one of the semiannual inspections to occur between September and December. This has some impact on the current inspection schedules; however, having four months to complete the one semiannual inspection should provide ample time to complete an already required inspection.

The other proposed LDAR amendment is to perform an inspection after a well has been temporarily shut in. When production is turned “off” at a well site the conditions change such that when the production is turned back on, well pressures and equipment status may have changed. It’s important to evaluate the well sites for potential leaks and fugitive emissions upon restart of the well. Since the well site is required to have semi-annual LDAR inspections while in operation, this would count as one of the required inspections.

Stakeholder Outreach and Comments

Other changes in the proposed rules are slight clarifications on definitions and conditions. The UDAQ staff provided advanced notice of the proposed changes to the oil and gas rules in December 17, 2021 to a variety of stakeholders. We received helpful comments and made changes to the draft proposed rules. One of the well operator concerns is the timing of compliance with the rules, which is January 1, 2023 for the storage vessel controls. Commenter’s mentioned that supply chain issues and labor shortages may make this date hard, if not

impossible to meet. The proposed date is important to reduce VOC emissions as a precursor pollutant to ozone in the winter months. The Uinta Basin nonattainment area has had three winters without exceeding the 2015 ozone standard, but there are still incidents of high ozone levels and continuing to maintain the standard is important. Creating consistency in rules and reasonable technological requirements to maintain the current ozone standard will allow future economic growth and good air quality for the Uinta Basin.

Recommendation: Staff recommends that the Board propose for public comment R307-506. Oil and Gas Industry: Storage Vessels; R307-508. Oil and Gas Industry: VOC Control Devices; R307-509. Oil and Gas Industry: Leak Detection and Repair Requirements; and R307-511, Oil and Gas Industry: Associated Gas Flaring as amended.